

California Energy Commission



*ETHANOL OPPORTUNITIES  
IN CALIFORNIA*

Governors Ethanol Coalition

Cedar Rapids, Iowa

June 22, 1999

**PAT PEREZ**

**California Energy Commission**

# Today s Discussion Includes



- Brief overview of California s phase-out of MTBE (Executive Order D-5-99)
- The potential for California biomass/ethanol industry
- Update on proposed amendments to California s gasoline regulations

# Executive Order D-5-99 by Governor Davis found:



- MTBE poses a threat to surface water, ground water, and drinking water
- MTBE may present potential health problems
- Reformulated gasoline can be produced without the use of MTBE

# CEC Responsibilities under Executive Order



- Coordinate activities with four other state agencies for implementation
- Develop a timetable by July 1, 1999, for removal of MTBE from gasoline
- Work with Calif. Air Resources Board and petroleum industry to supply MTBE-free gasoline year round to Lake Tahoe area

# Executive Order - D-5-99

## Potential For Ethanol



- Report on the potential for development of a California waste-based or other biomass ethanol industry
- Evaluate what steps, if any would be appropriate to foster waste-based or other biomass ethanol development in California should ethanol be found to be an acceptable substitute for MTBE



# Report Scope Will:

- Evaluate waste biomass resources in California and possible benefits
- Assess energy crop resources in California
- Review biomass-to-ethanol conversion options
- Estimate biomass-to-ethanol production potential



# Report Scope Will:

- Examine the economics of biomass-to-ethanol production
- Identify issues that could affect development of a biomass ethanol industry
- List potential actions by California government and other entities that would aid the development of a viable industry

# Challenges Facing Industry



- High production costs and capital requirements
- Difficulty in obtaining financing
- Uncertain motor fuel regulations
- Infrastructure, distribution and storage constraints



# Challenges Facing Industry



- Risks of commercially untested technologies
- Local permitting and Siting requirements
- Difficulty of obtaining consistent , low cost feedstocks
- Possible fuel quality concerns

# Potential Benefits of Developing Industry



- Sustainable rural employment
- Reduced greenhouse gas emissions
- Improved forest health and productivity
- Diversion of waste materials from landfill

# Potential Benefits of Developing Industry



- Improved air quality by reduction of open burning
- Domestically produced renewable fuel
- Non petroleum-based fuel source



# Peer Review Group

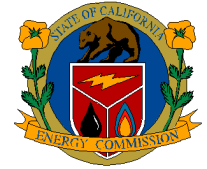
- Federal Government - U.S. DOE, Oak Ridge National Laboratory, SANDIA, and U.S. Department of Agriculture
- State & Local Government - Integrated Waste Management Board, Dept. of Food and Agriculture, Air Resources Board, and County of Ventura

# Peer Review Group



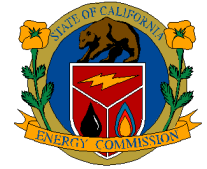
- Private Industry, Associations & Other -  
Chevron, TEMBEC, Environment and  
Energy Study Institute, Renewable Fuels  
Association, MASADA, and University  
of Sherbrooke

# Ethanol Report Schedule



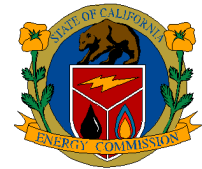
- |                      |                   |
|----------------------|-------------------|
| ■ Draft Report       | August 13, 1999   |
| ■ Public Workshop    | September 10      |
| ■ Revised Draft      | October 22        |
| ■ Public Hearing     | November 18       |
| ■ Final Report       | December 15       |
| ■ Report to Governor | December 31, 1999 |

# Proposed Amendments to California's RFG Regulations



- California Air Resources Board Hearing -  
June 24, 1999
  - rescission of winter time oxygen requirement  
in Lake Tahoe Basin
  - require labeling of pumps dispensing gasoline  
containing MTBE on statewide basis

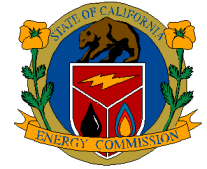
# Refinery Infrastructure Capability



- MTBE is important blending component with many desirable characteristics
  - Helps refiners achieve compliance with California Phase II gasoline
- Most California refiners designed facilities to use MTBE
- All would require modifications to produce gasoline without the use of MTBE



# Distribution Infrastructure Issues



- Ethanol requires special handling (unlike other oxygenates)
- Has affinity for water & separation can occur
- Requires segregated tanks at refineries and terminals
- Blending equipment for loading racks
- Terminal modifications to receive ethanol

# Distribution & Infrastructure Modifications - Key Findings



- Installation of equipment to reduce volatility of the final product
- Less than 30% of the terminals in California have the capability of dispensing gasoline containing ethanol
  - need for special blending equipment
  - need for new rail connections & off-loading racks
  - permitting and construction to upgrade remaining terminals could take up to two years



# Areas of Uncertainty

- Potential removal of federal minimum oxygenate requirement (after 1999)
- Viability of ethanol as a potential replacement for MTBE
- Proposed Phase 3 Reformulated Gasoline Specifications (by December 1999)



# For More Information...

*Contact Pat Perez on  
Biomass-to-Ethanol Activities:*

**Phone: 916-654-4527**

**E-mail: [pperez@energy.state.ca.us](mailto:pperez@energy.state.ca.us)**

*or visit our Web site at:*

**[www.energy.ca.gov/mtbe](http://www.energy.ca.gov/mtbe)**